

CLAIMS

WHAT IS CLAIMED IS:

1. A valve core for opening and closing a core mounting
5 throughbore, comprising:

a cylindrical core body fixed inside the throughbore and made of a metal having a hardness differing from a hardness of an inner wall of the throughbore, the core body having a distal opening;

10 a moving shaft inserted through the core body so as to be directly moved and made of a metal having a hardness differing from the hardness of the core body, the moving shaft having an end;

a plug formed integrally at the end side of the moving shaft
15 so as to open and close the distal opening of the core body;

a biasing member biasing the moving shaft so that the distal opening of the core body is closed by the plug;

a body positioning abutment formed on an outer face of the core body so as to abut the inner wall of the throughbore, thereby
20 providing a metal seal for a gap between the inner wall of the throughbore and the outer face of the core body; and

an abutting taper formed on the plug so as to abut an inner edge of the distal opening of the core body, thereby providing a metal seal for a gap between the plug and the distal opening
25 of the core body.

2. A valve core according to claim 1, further comprising a cylindrical sealing member detachably fitted with the core body,

the sealing member including an outer sealing portion fitted with the outer periphery of the core body so as to be held between the core body and the inner wall of the throughbore thereby to adhere closely to outer periphery of the core body and an inner
5 sealing portion provided to adhere closely to an outer face of the plug, the outer and inner sealing portions being formed integrally with the sealing member.

3. A valve core according to claim 2, wherein the inner sealing
10 portion protrudes forward from an end of the core body.

4. A valve core according to claim 2, wherein the inner sealing portion includes a cylindrical portion with a distal end and a cylinder side taper formed by gradually spreading a distal end
15 side inner diameter of the cylindrical portion, and the plug includes a columnar portion fitted into the cylindrical portion of the inner sealing portion and a shaft side taper adhering closely to the cylinder side taper.

20 5. A valve core according to claim 3, wherein the inner sealing portion includes a cylindrical portion with a distal end and a cylinder side taper formed by gradually spreading a distal end side inner diameter of the cylindrical portion, and the plug includes a columnar portion fitted into the cylindrical portion
25 of the inner sealing portion and a shaft side taper adhering closely to the cylinder side taper.

6. A valve core according to claim 2, wherein the cylindrical

sealing member is rotatably fitted with the core body.

7. A valve core according to claim 3, wherein the cylindrical sealing member is rotatably fitted with the core body.

5 8. A valve core according to claim 4, wherein the cylindrical sealing member is rotatably fitted with the core body.

9. A valve core according to claim 5, wherein the cylindrical sealing member is rotatably fitted with the core body.

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10. A valve core according to claim 2, wherein the cylindrical sealing member is butted against a stepped portion between a portion of the core body with which the cylindrical sealing member is fitted and the body positioning abutment.

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11. A valve core according to claim 3, wherein the cylindrical sealing member is butted against a stepped portion between a portion of the core body with which the cylindrical sealing member is fitted and the body positioning abutment.

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12. A valve core according to claim 4, wherein the cylindrical sealing member is butted against a stepped portion between a portion of the core body with which the cylindrical sealing member is fitted and the body positioning abutment.

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13. A valve core according to claim 5, wherein the cylindrical sealing member is butted against a stepped portion between a portion of the core body with which the cylindrical sealing member

is fitted and the body positioning abutment.

14. A valve core according to claim 2, wherein the cylindrical sealing member includes a larger diameter portion and a smaller diameter portion both arranged axially, the core body is fitted
5 in the larger diameter portion, and the core body has an end face butted against a stepped portion between the larger and smaller diameter portions.

15. A valve core according to claim 3, wherein the cylindrical
10 sealing member includes a larger diameter portion and a smaller diameter portion both arranged axially, the core body is fitted in the larger diameter portion, and the core body has an end face butted against a stepped portion between the larger and smaller diameter portions.

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16. A valve core according to claim 4, wherein the cylindrical sealing member includes a larger diameter portion and a smaller diameter portion both arranged axially, the core body is fitted in the larger diameter portion, and the core body has an end face
20 butted against a stepped portion between the larger and smaller diameter portions.

17. A valve core according to claim 6, wherein the cylindrical sealing member includes a larger diameter portion and a smaller
25 diameter portion both arranged axially, the core body is fitted in the larger diameter portion, and the core body has an end face butted against a stepped portion between the larger and smaller diameter portions.

18. A valve core according to claim 10, wherein the cylindrical sealing member includes a larger diameter portion and a smaller diameter portion both arranged axially, the core
5 body is fitted in the larger diameter portion, and the core body has an end face butted against a stepped portion between the larger and smaller diameter portions.

19. A valve core according to claim 1, wherein the biasing
10 member comprises a compression coil spring inserted into a portion of the moving shaft protruding outward from the core body so as to be compressed between a spring stopper formed integrally with the end of the moving shaft and the end of the core body.

15 20. A valve core according to claim 2, wherein the biasing member comprises a compression coil spring inserted into a portion of the moving shaft protruding outward from the core body so as to be compressed between a spring stopper formed integrally with the end of the moving shaft and the end of the core body.

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21. A valve core according to claim 3, wherein the biasing member comprises a compression coil spring inserted into a portion of the moving shaft protruding outward from the core body so as to be compressed between a spring stopper formed integrally with
25 the end of the moving shaft and the end of the core body.

22. A valve core according to claim 4, wherein the biasing member comprises a compression coil spring inserted into a portion

of the moving shaft protruding outward from the core body so as to be compressed between a spring stopper formed integrally with the end of the moving shaft and the end of the core body.

5 23. A valve core according to claim 6, wherein the biasing member comprises a compression coil spring inserted into a portion of the moving shaft protruding outward from the core body so as to be compressed between a spring stopper formed integrally with the end of the moving shaft and the end of the core body.

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 24. A valve core according to claim 10, wherein the biasing member comprises a compression coil spring inserted into a portion of the moving shaft protruding outward from the core body so as to be compressed between a spring stopper formed integrally with
15 the end of the moving shaft and the end of the core body.

 25. A valve core according to claim 14, wherein the biasing member comprises a compression coil spring inserted into a portion of the moving shaft protruding outward from the core body so as
20 to be compressed between a spring stopper formed integrally with the end of the moving shaft and the end of the core body.

 26. A valve core according to claim 1, wherein the core body, the moving shaft and an elastic member serving as the biasing
25 member are formed into three discrete parts.

 27. A valve core for opening and closing a core mounting throughbore, comprising:

a cylindrical core body fixed inside the throughbore and having a distal opening;

a moving shaft inserted through the core body so as to be directly moved and having an end;

5 a plug formed integrally at the end side of the moving shaft so as to open and close the distal opening of the core body;

a biasing member biasing the moving shaft so that the distal opening of the core body is closed by the plug;

10 a body positioning abutment formed on an outer face of the core body so as to abut the inner wall of the throughbore, thereby providing a metal seal for a gap between the inner wall of the throughbore and the outer face of the core body;

an abutting taper formed on the plug so as to abut an inner edge of the distal opening of the core body, thereby providing
15 a metal seal for a gap between the plug and the distal opening of the core body; and

a sealing resin coated on the core body so that at least the body positioning abutment and an inner edge of the distal opening of the core body are covered by the resin.